second insulating layer are solid-state-bonded to each other so as to contact one another in a bonded state.

REMARKS

This is in response to the Office Action dated August 21, 2002, and in furtherance of the Interview held at the USPTO on December 6, 2002 (see Interview Summary Form, Paper No. 8). Claims 1, 3-9 and 20-24 are pending.

Claim 20 stands rejected under 35 U.S.C. Section 102(b) as being allegedly anticipated by Kawai. This Section 102(b) rejection is respectfully traversed for at least the following reasons.

Claim 20 requires "a first substrate supporting a first insulating layer with a contact hole defined therein, and a first conductive material filling in the contact hole in the first insulating layer and protruding above a surface of the first insulating layer . . . . wherein the first conductive material that fills in the contact hole in the first insulating layer and the second conductive material that fills in the contact hole in the second insulating layer are solid-state-bonded to each other so as to ***contact one another*** in a bonded state." For example, see Figs. 3-4 of the instant application which illustrate that the conductive material 5 in contact hole 13 of insulating layer 7 is solid-state-bonded to and ***contacts*** the conductive material 25 provided in through hole 28 of the other insulating layer 27. Kawai fails to disclose or suggest this aspect of claim 20.

In particular, Kawai's requirement of tin bonding members 5 and metal wirings 2 means that in Kawai the material which fills opposed through holes 4 in Kawai is *not*

directly bonded to each other and thus is in *non*-contacting relation. Kawai thereby teaches directly away from, and is unrelated to the invention of claim 20.

During the Interview, the Examiner argued that "contact" as recited in the next-to-last line of claim 20 does not mean "directly contact." Thus, the Examiner argued that in Fig. 12(c) of Kawai the Cu 4 in one hole contacts the Cu 4 in another hole even though layers 2 and 5 are therebetween. The Examiner is clearly wrong. The word "contact" means touching. The Examiner's argument that "contact" does not mean touching is illogical and defies the clear and well-known definition of this word. The Examiner's contention that two layers which are nowhere near each other are "contacting" each other is clearly wrong, and has no support whatsoever. The rejection should be withdrawn.

Claim 1 stands rejected under 35 U.S.C. Section 102(b) as being allegedly anticipated by Kawai. This Section 102(b) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires "a first portion comprising a first substrate, a conductive layer and an insulating layer laminated on the first substrate and a bonding surface that is chemically mechanically polished and exposes a conductive region and an insulating region, wherein the *conductive region includes a concave surface defining a dishing portion*; a second portion comprising a second substrate, a conductive layer and an insulating layer laminated on the second substrate and a bonding surface that is chemically mechanically polished and exposes at least a *conductive region having a concave surface defining a dishing portion*; and wherein the bonding surface of the first portion and the bonding surface of the second portion are *solid-state-bonded to each*

other so that the dishing portions of the conductive regions of the respective first and second portions are bonded to each other so as to contact one another . . . ." For example, see Fig. 3 of the instant application which illustrates opposing concave dishing portions 17, 29 which are to be solid state bonded to one another. Kawai fails to disclose or suggest the aforesaid underlined aspects of claim 1.

Kawai in Fig. 12(c) illustrates Cu filled through holes 4 provided in insulating films 1, which are in electrical communication with one another via metal wirings 2 and Sn bonding members 5. However, Kawai significantly differs from the invention of claim 1 in that the Cu material which fills through holes 4 in Kawai *does not have a dishing portion (i.e., it has no concave shaped surface).* Since Kawai fails to disclose or suggest the claimed dishing portions, claim 1 cannot be anticipated or otherwise rendered unpatentable over Kawai. Kawai is entirely unrelated to the invention of claim 1 in this regard. The Examiner ***admits*** that these aspects of claim 1 are not disclosed or suggested by Kawai.

The Examiner states that in the final structural product disclosed in the instant application, the bonded surfaces are not "concave" as attached to one another (see Fig. 4 of the instant application). The Examiner is correct in this regard. However, claim 1 does not state that the final product must include the dishing portions; instead, claim 1 states that two opposed concave dishing portions are bonded to one another in order to form the final product. Whether the final product includes "dishing portions" is irrelevant. The aforesaid aspect of claim 1 is, admittedly, is a product-by-process limitation(s).

The Examiner contends that this aspect of claim 1 can be ignored since it is a product-by-process limitation. Applicant disagrees, since *an examination of the final product can indicate whether the claimed process was used in making the product.* The law is well-established in that the Examiner must consider a product-by-process limitation where an examination of the product can indicate whether the claimed process was used in making the product. Here, one can tell from examining the final product (e.g., see Fig. 4) whether or not the claimed process of bonding two opposed concave dishing portions to one another (e.g., see Fig. 3) was used in making the final product. In particular, in the final product, peripheral and central parts of solid state bonded dishing portions are different in strain and texture due to the difference between deformation rates of the central and peripheral parts of the dishing portions. In the final product, the strain is concentrated in the peripheral parts of the bonded dishing portions, and thus the peripheral parts of the dishing portions are more strongly bonded. In other words, one can tell from an examination of the final product that opposed concave dishing portions were solid-state bonded to one another as required by claim 1. Thus, the Examiner is required to consider the product-by-process aspects of claim 1 which the Examiner has admitted are not disclosed or suggested by Kawai. Since the cited art fails to disclose or suggest the aforesaid quoted aspects of claim 1, the rejection is incorrect.

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are believed to be in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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